

# 1. Introduction

## 1.1 Purpose

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It defines the test plan and protocol used to validate all functional and non-functional requirements of the **FunFlip Educational Game**.

**Audience:** Quality assurance team, developers, project reviewers

**Scope of use:** Entire test cycle during development, delivery, and final acceptance phase.

## 1.2 Summary

The documentation outlines the test specifications, test infrastructure, detailed test cases, execution results, defect logging, and final test conclusions.

**Stakeholders:** Developers, testers, reviewers, and supervisors.

## 1.3 Definitions and Abbreviations

Term	Definition
TC	Test Case
QA	Quality Assurance
NFR	Non-Functional Requirement
FR	Functional Requirement
Pass	Test case meets expected outcome
Fail	Test case does not meet expected outcome

## 1.4 References, Standards, and Rules

- FunFlip Game Requirements Document
- Architecture Documentation
- SWE\_SoSe2025\_DELIVERABLES.pdf
- tasks3\_document-check-list.pdf
- swe\_05\_test.pdf

## 1.5 Overview

This document includes:

- Test specification and test infrastructure
- 15 manually executed test cases
- Test protocol including summary and defect log
- Conclusion of testing with final validation statement

## 2. Test Specification

Each test case includes:

- Tested requirement
- Preconditions and postconditions
- Test steps
- Expected result
- Infrastructure used

Test case no	Req. Id	Test objective	Precondition	Test steps	Expected result	Postcondition	Test result
TC01	FR_01	Navigate to Category Selection via Play	On start screen	Tap Play button	Category selection appears	Category screen shown	Pass
TC02	FR_02	Select one of 3 Difficulty Levels	On category screen	Tap difficulty level	Level selected	Game starts at selected level	Pass
TC03	FR_03	Flip cards and match pairs	Game started	Tap two cards	Cards flip and match if same	Matched cards stay flipped	Pass
TC04	FR_04	Audio on card flip	Game started	Flip a card	Card flip sound plays	Sound heard	Pass
TC05	FR_05	Unmatched cards flip back	Game started	Tap two unmatched cards	Cards flip back after delay	Cards face down again	Pass
TC06	FR_06	Display turn count	Game started	Flip cards	Turn count updates	Turn count visible	Pass
TC07	FR_07	Play happy sound on match	Game started	Match a pair	Happy sound plays	Sound heard	Pass
TC08	FR_08	Replay, return to menu, quit	In game or menu	Tap corresponding button	Action performed	Returned/restarted/exited	Pass

TC09	FR_09	Voice feedback by category	Game started	Flip a card	Voice says category name	Voice heard	Pass
TC10	FR_10	Toggle sound/music	Settings menu	Tap sound/music toggle	Sound/music toggles	Setting updated	Pass
TC11	NFR_01	Simple, colorful UI for kids	App launched	Browse app	UI elements are colorful	UI visually appealing	Pass
TC12	NFR_02	Offline operation	App installed	Use app offline	App works without internet	Offline features functional	Pass
TC13	NFR_03	Load Start Screen Quickly	App installed & launched	Launch app	Start screen appears quickly	Start screen visible	Pass
TC14	NFR_04	No personal data collection	App used	Use all features	No data prompts or collection	No data saved/shared	Pass
TC15	NFR_05	Modular Godot components	Dev environment ready	Inspect codebase	Modular scenes/scripts	Reusable components	Pass

### 3. Test Protocol

#### Test Results Summary

Test Case	Result	Notes
TC01	Pass	Fast start screen load
TC02	Pass	Navigation to category works
TC03	Pass	Difficulty level selection correct
TC04	Pass	Flip sound plays
TC05	Pass	Cards flip back after mismatch
TC06	Pass	Turn count updates correctly
TC07	Pass	Happy sound on match plays
TC08	Pass	Replay and quit work
TC09	Pass	Voice feedback by category audible
TC10	Pass	Sound/music toggle functioning
TC11	Pass	Colorful UI renders correctly
TC12	Pass	Works offline as expected
TC13	Pass	Start screen loads quickly
TC14	Pass	No personal data prompts shown
TC15	Pass	Modular components verified in code

## Defect Log

Test Case	Defect Class	Description
TC07	5 (Cosme	Slight delay in flip-back animation
TC04	4 (Minor UI)	Button alignment slightly off

## Conclusion

All required test cases were executed successfully.

### Result:

- No critical defects (Class 1–3)
- Minor cosmetic/UI issues (Class 4–5) accepted for delivery

The system meets all acceptance criteria and is ready for formal handover.

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